



www.mnclimatechange.us

Catalog of State Actions Residential, Commercial, Industrial (RCI) Working Group

A catalog of state-level, GHG-reducing actions and policy options based on actions undertaken or considered by state, local and private actors.

Key to Future Rankings of Options in the Tables that Follow:

Potential GHG Emission Reductions <u>1/</u>	Potential Cost or Cost Savings <u>1/ 2/</u>
High (H): At least 1.0 million metric tons (MMt) carbon dioxide equivalent (CO ₂ e) per year by 2020 (~1% of current MN emissions)	High (H): \$50 per metric ton CO ₂ e (tCO ₂ e) or above
Medium (M): From 0.1 to 1.0 MMtCO ₂ e per year by 2020	Medium (M): \$5-50/tCO ₂ e
Low (L): Less than 0.1 MMtCO ₂ e per year by 2020, or 1 MMtCO ₂ e by 2050	Low (L): Less than \$5/tCO ₂ e
Uncertain (U): Not able to estimate at this time	Negative (Neg): Net cost savings
	Uncertain (U): Not able to estimate at this time
<u>1/</u> Several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently from other measures. <u>2/</u> Costs are denoted by a positive number. Cost savings (i.e., “negative costs”) are denoted by a negative number.	

Definition of “Priorities for Analysis”:

- **High:** High priority options will be analyzed first.
- **Medium:** Medium priority options will be analyzed next, time and resources permitting.
- **Low:** Low priority options will be analyzed last, time and resources permitting.

Notation of Options:

- **Options marked in bold an asterisk (*)** indicate some of the related state actions that are approved or underway, as described further in the companion options description document. TWG members are encouraged to provide information on other relevant actions.

Residential, Commercial, and Industrial (RCI)

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs, Fuel Imports, Externalities, Feasibility	Priority for Analyses	Notes
RCI-1	ENERGY EFFICIENCY PROGRAMS, FUNDS, AND GOALS					
1.1	Utility Demand Side Management (DSM) Programs for electricity *(S)					Xcel's new Energy Conservation Investment Program (CIP) program for industrial customers
1.2	Utility DSM Programs for natural gas, propane, and fuel oil *(S)					Xcel's new CIP program for industrial customers
1.3	Non-utility demand-side management (munis, coops, etc.)					
1.4	Energy Efficiency Funds (e.g. Public Benefit Funds) administered by State agency, utility, or 3rd party (e.g. Energy Trust) *(S)					<u>From MN Recent Action List</u> Environmental Assistance Grants/Loans Energy Conservation Investment Loan
1.5	Regional market transformation alliance					
1.6	Reduced cost or free residential energy audits					
1.7	Reduced cost energy audits for businesses					
1.8	Low-cost loans for efficiency improvements *(S)					<u>From MN Recent Action List</u> Environmental Assistance Grants/Loans Energy Conservation Investment Loan

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs, Fuel Imports, Externalities, Feasibility	Priority for Analysis	Notes
1.9	Saving Energy, Saving Sales Tax *(S)					From MN Recent Action List
1.10	Reduce Energy Use by 10% in State Owned Buildings *(S)					From MN Recent Action List
RCI-2	BUILDINGS					
2.1	Improved building codes for energy efficiency *(S)					CIP, MPCA <u>MN Recent Actions List</u> : Residential and Commercial Building Code
2.2	Training of building code and other officials in energy code enforcement					DOC, DOLI
2.3	Building Commissioning and Recommissioning, including Energy Tracking and Benchmarking *(S)					Metro County Energy Task Force's (MCETF) Alternative CIP filing. Intended to be expanded to all Counties. MPCA – SIP, B3 <u>From MN Recent Actions List</u> Green Building Program Sustainable Affordable Housing MN Housing will work closely with Commerce, Utilities and the University of Minnesota Center for Sustainable Building Research to identify what mechanisms we can put in place to track performance to identify the costs and benefits of implementing energy efficient and Green measures in affordable housing developments.

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs, Fuel Imports, Externalities, Feasibility	Priority for Analyses	Notes
2.4	Increased Use of Blended Cement (substituting fly ash or other pozzolans for clinker reduces CO ₂ emissions)					
2.5	Support for energy efficient communities planning, "smart growth"					
2.6	Promotion and Incentives for Improved Design and Construction (e.g. LEED ¹ , green buildings) *(S)					From MN Recent Actions List Sustainable Building Guidelines for New State Buildings MN Housing requires an integrated design process and a green development plan. MN Housing will adopt a Minnesota overlay of Green Communities Criteria designed for affordable housing development. LEED certification is not required.
2.7	Feebate program to encourage energy efficiency in building design					
2.8	Incentives for retrofit of existing residential buildings					
2.9	Training and Education for Builders and Contractors (e.g. HVAC ² sizing, duct sealing) *(S,L)					DOC, DOLI

¹ LEED = Leadership in Energy Efficiency Design, a national building certification program.

² HVAC = Heating, Ventilation, and Air Conditioning

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs, Fuel Imports, Externalities, Feasibility	Priority for Analyses	Notes
2.10	Energy Management Training/Training of Building Operators *(S)					<p>Metro County Energy Task Force's (MCETF) Alternative CIP filing. Intended to be expanded to all Counties. SIP (BOC)?</p> <p>MN Housing requires that an owner's manual be provided for all developments about proper use and maintenance of all building systems and information on how to maintain the green features of the site.</p>
RCI-3	APPLIANCE STANDARDS					
3.1	Expansion of State-level Appliance Efficiency Standards *(S)					MN Housing currently encourages within its' architectural design standards, Energy Star appliances as well as encouraging site specific energy savings opportunities that arise.
3.2	Support for higher federal efficiency standards *(S)					<p>MN Housing currently encourages within its' architectural design standards, Energy Star appliances as well as encouraging site-specific energy savings opportunities that arise.</p> <p>MPCA – letter to feds in support</p>
3.3	Require high-efficiency appliances in new construction and retrofits					
RCI-4	EDUCATION AND OUTREACH					
4.1	Consumer education programs *(S)					<p>DOC, MPCA</p> <p>MN Housing will provide an Occupant's Manual as well as Homeowner and New Resident Orientation that explains the intent, benefits, use and maintenance of green building features in affordable</p>

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs, Fuel Imports, Externalities, Feasibility	Priority for Analyses	Notes
						housing developments.
4.2	Energy Efficiency School Curriculum					MPCA-EE
4.3	Truth in Advertising Campaign					
4.4	In-home energy displays					
RCI-5	PRICING AND PURCHASING					
5.1	Green Power Purchasing for consumers *(S)					Xcel's Wind Source program
5.2	Net-metering for DG					
5.3	Time of Use Rates					
5.4	Tiered (increasing block) rates for electricity and natural gas use					
5.5	Bulk Purchasing Programs for Energy Efficiency or other Equipment (Public or Private sector)					IPPAT??
RCI-6	TECHNOLOGY-SPECIFIC POLICIES					
6.1	Incentives for Renewable DG (Solar roofs, water heaters, etc.)					MPCA, DOC, MDA
6.2	Incentives & resources to promote Combined Heat and Power (a.k.a. cogen)					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs, Fuel Imports, Externalities, Feasibility	Priority for Analyses	Notes
6.3	Efficient transformers on the customer side of the meter					
6.4	Incentives & resources for passive solar heating					
6.5	White Roofs, Rooftop Gardens, and Landscaping (including Shade Tree Programs) *(L)					
6.6	Focus on specific end-uses consumer products: window AC units, lighting, water heating, plug loads, networked PC management, power supplies, motors, pumps, boilers, etc.					
6.7	Passive solar heating design					
6.8	Passive solar hot water					
6.9	Appliance Recycling/Pick-Up Programs					
RCI-7 NON-ENERGY EMISSIONS (HFCS, PFCS, SF₆, CO₂ PROCESS EMISSIONS)						
7.1	Voluntary Industry-Government Partnerships *(S)					MPCA Eco-Experience Eco-Industrial (Duluth) GB partners
7.2	Promotion & funding for Leak Reduction /Capture, Recovery and Recycling of Process Gases					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs, Fuel Imports, Externalities, Feasibility	Priority for Analyses	Notes
7.3	Promotion & funding for Process Changes/Optimization					MNTAP
7.4	Use of Alternative Gases (other HFCs, hydrocarbon coolants/refrigerants, etc.)					MNTAP DPE
RCI-8	GHG EMISSIONS-SPECIFIC GOALS AND POLICIES					
8.1	Support for switching to less carbon-intensive fuels (coal and oil to natural gas or biomass)					
8.2	Industry-Specific Emissions Cap and Trade Programs (mandatory)					
8.3	Negotiated Emissions or Energy Savings Agreements *(S)					Peak Control Agreements are available from Xcel.
8.4	Local government program for voluntary emissions targets by businesses					ICLCI Cities efforts? Carpets?
8.5	Provide tools and information for residents, businesses, & communities to perform GHG inventories.					
RCI-9	OTHER					
9.1	Government Agency Requirements and Goals					Metropolitan Council (MC) – Env. Services goal of 15% reduction by 2010

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs, Fuel Imports, Externalities, Feasibility	Priority for Analyses	Notes
	(including procurement) *(S,L)					IPPAT EO's
9.2	Reduce Energy Use by 10% in State Owned Buildings *(S)					From MN Recent Action List
9.3	State buildings carbon neutral requirement					
9.4	Municipal Energy Management *(L)					Metro County Energy Task Force (MCETF); Rural Minnesota Energy Board (17 counties)
9.5	Statewide effort to retrofit existing buildings (residential, commercial, public, and industrial) for energy efficiency.					
9.6	Focus on specific market segments such as low-income housing, small & medium enterprises, etc. --Conservation Improvement Program Affordable Housing Pilot --MN Housing Sustainable Development Policy – Green Affordable Housing			MN Housing will work closely with Commerce, Utilities and the University of Minnesota Center for Sustainable Building Research to identify what mechanisms we can put in place to track performance to identify the costs and benefits energy efficient building components and of implementing Green criteria in affordable housing developments.		MCI Grand. With Commerce, MN Housing is developing an affordable housing energy Conservation Improvement Program Pilot. The goal of the CIP Pilot is to identify and promote energy efficient models to be used in construction and rehabilitation of new affordable and supportive housing units to improve energy conservation and assist utilities in implementation of a cost-effective low-income CIP project. Minnesota Housing encourages developments to incorporate a Minnesota overlay of Green criteria designed for affordable housing development.
9.7	Energy efficiency Reinvestment Fund					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs, Fuel Imports, Externalities, Feasibility	Priority for Analysis	Notes
9.8	Industrial Audits					
9.9	Focus on Industrial ecology/ by-product synergy					Eco-Indus (MPCA)